

YEAR 1882

Five storms were identified as having occurred in 1882. Tracks for these storms are presented in Fig. 2.

Storm 1, 1882 (Aug. 24).

This is a storm case which was not previously known and that the author of this study has recently documented.

Documentation of this storm was based on the following information : 1) Capt. Cacace of the bark "Grolinina" spoke bark "Will W. Case" at lat. 35 12 N., 66 18 W. Her captain informed that the "Case" left New York for Passages (it should read Pasajes) on Aug. 14 and that on Aug. 24, in lat. 38 N., long. 48 W., was dismasted during a hurricane. The bark "Case" refused assistance and was heading for New York (The New York Times, Sept. 22, 1882, p.8, col.6). Author's note: Pasajes is a port which is located on the northern coast of Spain near the border with France. 2) The bark "Will W. Case" was bound for Passages (it should read Pasajes), Spain, having left New York several weeks ago. She encountered a heavy gale in which the fore and mainmast heads, jibboom and the top gear were carried away. She reached the Delaware Breaker on Sept. 25 and then came to New York (The New York Times, Oct. 4, 1882, p.2, col.4). 3) Capt. Strauberg of the ship "Ida", which arrived from Antwerp yesterday, reported that on Aug. 24 was caught in a hurricane at lat. 43 20 N., long. 32 W. (it should read long. 52 W.). The wind came from E.S.E. and, shifting to the W., it blew with great violence for several hours. The sea was extremely heavy and the vessel shipped a great deal of water. On the following day a dismasted vessel was sighted in lat. 43 52 N., long. 53 55 W. She had been abandoned and was completely waterlogged (The New York Times, Sept. 7, 1882, p.2, col. 6).

On the basis of information contained in item 1), the author of this study estimated that the storm was located not very far from 38.5 degrees N., 52.0 degrees W. at 7 A.M. Aug. 24. This estimated position was about 200 miles to the west of the one reported by the "Will W. Case" in item 1). The author opted for that position because any position significantly farther to the east would have required to introduce a northwestward motion (very unlikely at that latitude) along the track to bring the storm to the vicinity of the location where ship "Ida" (item 3) experienced it, presumably later on the same day. The author's track in Fig. 2 moved the storm northward from the 7 A.M. Aug. 24 position and, by so doing, satisfied the information contained in item 3). After passing the 44 degrees N. parallel, the author curved his track to the N.N.E.

According to the content of items 1) and 3), the storm apparently reached hurricane status.

Storm 2, 1882 (Sept. 2-12).

This is the same storm that Neumann et al . (1993) identify as Storm 1, 1882.

Abundant information was found about this storm: 1) Storm of Sept. 2-15, 1882. Turks Island, Cuba, Gulf coast. Wind reached 92 mph at Port Eads, La. (Tannehill, 1938). 2) Turk Is., Sept. 2, 10 A.M., barometer 29.79 inches, strong N.E. wind; Sept. 3, 10 A.M., barometer 29.76 inches, strong S.W. wind. At Turk Island there was considerable wind and rain on

Sunday, Sept. 3 (it should read Saturday, Sept. 2) which continued during the night up to daylight of Sept. 4 (it should read Sept. 3). During the night there was experienced the heaviest thunderstorm on record since 1852. The shifting of the wind showed the passage of the storm to the S. of Grand Turk Island before the morning of Sept. 3 (Monthly Weather Review, Sept, 1882). 3) Ship "Alene", 7:11 A.M. Sept. 3, lat. 19 39 N., long. 74 17 W., barometer 30.00 inches, wind N.N.E. force 1, clear and fine, N.E. swell; 3 A.M., Sept. 4, weather gloomy and threatening, wind backed to W. thence to S. and E.; 4 A.M., barometer 29.70 inches; 6 A.M., barometer 29.65 inches, the gale at its height between these observations, violent squalls from S.E. accompanied by heavy rain and hail, sea rising rapidly; 7:10 A.M. Sept. 4, lat. 23 11 N., long. 74 25 W., barometer 29.95 inches (it should probably read 29.75 inches), wind S.E. force 7, overcast; 7:30 A.M., barometer 29.75 inches, wind S.E. force 6; 8 A.M., barometer 29.80 inches, wind E.S.E. force 6; 10 A.M., barometer 29.90 inches, sea subsiding; 11:30 A.M., barometer 29.97 inches; noon, barometer 29.98 inches; 1:30 P.M., barometer 29.98 inches, wind E.S.E. force 5 (Monthly Weather Review, Sept. 1882). Author's note: Barometer readings seem to be too high. The vessel passed near the storm center some time before 3 A.M. Sept. 4. 4) Observations taken by the brig "John Wesley". Some of these observations were taken in local time and some in Greenwich time. 7:10 A.M. (local time), Sept. 2, lat. 22 30 N., long. 74 25 W., barometer 29.84 inches, wind N.E. by E. force 4, clear, sea smooth; 7:08 A.M. Sept. 3, barometer 29.51 inches, wind E.S.E. force 10. Rain and blowing, very heavy sea; 7:11 A.M. Sept. 4, lat. 25 24 N., long. 74 15 W., barometer 29.91 inches, wind E. by S. force 5, heavy cross swell. Noon, Sept. 3 (Greenwich time), barometer 29.84 inches, wind E. A heavy bank at E.S.E., sky full of cirrus and cirrostratus moving apparently to W.N.W. Vessel in Crooked Island Passage, after getting through the passage found a high swell from E.S.E.; 4 P.M., barometer 29.86 inches, wind very puffy with sprinkling rain; 5 P.M., barometer 29.87 inches, wind E.N.E., wind and rain increasing; 6 P.M., barometer 29.83 inches, wind blowing strong with heavy rain and high sea, hove to; 8 P.M., barometer 29.51 inches, (wind) blowing very hard with very heavy rain; 10 P.M., barometer 29.18 inches, wind E., blowing terrifically; midnight (Sept. 3-4), barometer 29.93 inches (it should read 28.93 inches), wind E.S.E., blowing terrifically; 2 A.M. Sept. 4, barometer 28.94 inches, wind S.E., blowing terrifically; 4 A.M., barometer 29.14 inches, wind S.E. by S., moderating at times; 6 A.M., barometer 29.35 inches, wind S.E. by S., moderating at times; 10 A.M., barometer 29.46 inches, (wind) moderating and clearing, very high sea; noon, barometer 29.51 inches, all sails set, passed close to Rum Key (Monthly Weather Review, Sept. 1882). Author's note: The positions and observations which were given in local time for Sept. 2, 3 and 4, should be advanced by one day to read Sept. 3, 4 and 5, respectively. These changes are supported by a) the noon Sept. 3 observation (Greenwich time), equivalent to about 7 A.M. Sept. 3 (local time) which shows the same pressure (29.84 inches) and approximately the same wind wrongly quoted as for 7:10 A.M. Sept 2 (local time) and by b) the noon Sept. 4 (Greenwich time) observation, equivalent to about 7 A.M. Sept. 4 (local time), which shows the same pressure (29.51 inches) and the same wind direction (E.S.E.) wrongly quoted as for 7:08 A.M. Sept. 3 (local time). The statement that the vessel had passed Rum Key by noon Sept. 4 (Greenwich time) also allowed for the vessel to have been at lat. 25 24 N., long. 74 15 W. at 7:11 A.M. Sept. 5 (local time) and not on Sept. 4 as wrongly stated. Judging by the observations expressed in Greenwich time, the lowest pressure recorded by the "John Wesley" was 28.93 inches at midnight (Sept. 3-4) and began to rise after 2 A.M. Sept. 4 (equivalent to 9 P.M. Sept. 3, local time) as the storm center had passed to the S. of the vessel and the wind had changed to S.E. The pressure

recovered significantly slower than it had dropped as the storm approached the vessel. 5) Selected observations taken at Isabela de Sagua. Noon, Sept. 4, barometer 29.92 inches, brisk N. wind, squally; 4 P.M., barometer 29.80 inches, N.N.E. gale, squally; 8 P.M., E.N.E. gale, misty and cloudy; midnight (Sept. 4-5), barometer 29.71 inches, gale from E.1/4 S.E., raining; 4 A.M. Sept. 5, barometer 29.74 inches, gale from S.E.1/4 E. with gusts, raining; 8 A.M., fresh S.E. wind, raining (Monthly Weather Review, Sept. 1882). Author's note: Observations from Isabela de Sagua and other places in Cuba were sent to the Signal Service by Father Benito Vines, S.J., the director of the Belen College Observatory of Havana. The barometer readings above are undoubtedly too high as compared with other Cuban observations taken near the path of the storm. Also the observation times given do not fit with the storm having passed to the south of Isabela de Sagua around 10 A.M. Sept. 5, a fact that is supported by other Cuban observations. If observation times were advanced by 12 hours, a reasonable fit would be obtained. 6) Selected observations taken at Cienfuegos. Midnight, Sept. 4-5, barometer 29.82 inches, wind N. force 3, large nimbus cluds between 1 and 2 quadrants; 8 A.M., Sept. 5, barometer 29.66 inches, wind N.W. force 4, "heavy gusts of rain"; 9 A.M., barometer 29.59 inches, wind N.W. force 4, hurricane gusts; 10 A.M., barometer 29.38 inches, wind W.N.W. force 4, hurricane; 10:15 A.M., barometer 29.31 inches, wind W.1/4 N.W. force 4, the gloomy and cloudy weather obstructed the sight of the vessels in the bay; 10:30 A.M., barometer 29.27 inches, wind W. force 4; 10:45 A.M., barometer 29.22 inches, wind W. force 4, greatest intensity; 11 A.M., barometer 29.18 inches, wind W.1/4 S.W. force 4, blowing with great force; 11:30 A.M., barometer 29.13 inches, wind W.S.W. force 4, blowing with great force; 11:45 A.M., barometer 29.15 inches, wind S.W.1/4 W. force 4, barometer rising; noon, barometer 29.16 inches, wind S.S.W. force 4, gloomy appearance, rain in torrents; 12:30 P.M., barometer 29.18 inches, wind S.S.W. force 4, gloomy appearance, rain in torrents; 1 P.M., barometer 29.27 inches, wind S.S.W. force 4, gloomy appearance, rain in torrents; 2 P.M., barometer 29.44 inches, wind S.1/4 S.W. force 4, less wind gusts and of shorter duration; 3 P.M., barometer 29.46 inches, wind S. force 4, gusts diminishing; 4 P.M., barometer 29.55 inches, wind S.S.E. force 4, heavy rain; 5 P.M., barometer 29.60 inches, wind S.S.E. force 4, heavy rain; 6 P.M., barometer 29.66 inches, wind S.E. force 4, rain and gusts; 7 P.M., barometer 29.70 inches, wind S.E. force 4, strong wind with lasting gusts; 8 P.M., barometer 29.78 inches, wind S.E. force 4, strong wind with lasting gusts; 10 P.M., barometer 29.80 inches, wind S.E. force 3, gusts at intervals (Monthly Weather Review, Sept. 1882). Author's note: Wind force numbers do not seem to refer to the Beaufort scale and their meaning is unknown. According to the above observations, the center of the hurricane passed to the north and very close to Cienfuegos around 11:30 A.M. Sept. 5. 7) 1882, Sept. 5-6. The hurricane showed up with fury over the Santa Clara province during the early morning hours of Sept. 5. The center passed over Cienfuegos where there was a vortical calm. It took a course towards the W.1/4 N.W. and passed a good distance to the S. of Havana. It emerged into the Gulf (of Mexico) near Guane (western Cuba) after having weakened considerably. It began losing strength after leaving Santa Clara (Sarasola, 1928). Author's note: Actually taken from the catalog of Cuban hurricanes by M. Gutierrez-Lanza which is included in Sarasola (1928). According to the above information, a portion of the city of Cienfuegos was in the eye of the hurricane. 8) Selected observations taken at Matanzas (Cuba). 8 A.M. Sept. 5, barometer 29.97 inches, wind N.N.E. force 3, showery; noon, barometer 29.91 inches, wind N.E. force 3.4, squally; 2 P.M., barometer 29.85 inches, wind N.E. force 3.4, squally; 4 P.M., barometer 29.77 inches, wind N.E.1/4 E. force 4, squally; 5 P.M., barometer 29.74 inches, wind E.N.E. force

5, squally; 6 P.M., barometer 29.74 inches, wind E. force 5, squally; 7 P.M., barometer 29.73 inches, wind E.S.E. force 5, squally; 8 P.M., barometer 29.75 inches, wind S.E. force 5, squally; 9 P.M., barometer 29.79 inches, wind S.E. force 5, squally; 10 P.M. barometer 29.80 inches, wind S.E. 1/4 E. force 4, showery; midnight (Sept. 5-6), barometer 29.86 inches, wind S.E. force 4, squally; 2 A.M. Sept. 6, barometer 29.90 inches, wind S.E. force 3; 6 A.M., barometer 30.00 inches, wind S.S.E. force 0, rainy (Monthly Weather Review, Sept. 1882). Author's note: Barometer readings appeared to be a little too high. The storm center should have passed to the S. of Matanzas around 7 P.M. Sept. 5. 9) Selected observations taken at Belen College Observatory, Havana. 8 A.M. Sept. 5., barometer 29.89 inches, wind N. 1/4 N.E. at 11.2 mph, thunder and lightning; noon, barometer 29.87 inches, wind N.N.E. at 15.7 mph, plain solar halo; 2 P.M., barometer 29.80 inches, wind N. 1/4 N.E. at 17.9 mph. threatening, violent gusts, maximum velocity 31.3 mph; 4 P.M., barometer 29.78 inches, wind N.E. 1/4 E. at 17.9 mph, cloudy and very dark, maximum velocity 44.7 mph; 6 P.M., barometer 29.73 inches, wind N.N.E. at 24.6 mph, wind gusts, maximum velocity 53.7 mph; 8 P.M., barometer 29.70 inches, wind N.E. 1/4 N. at 26.8 mph, rain and wind gusts, maximum velocity 53.7 mph; 10 P.M., barometer 29.69 inches, wind E.N.E. at 26.8 mph, violent wind gusts and very dark, maximum velocity 69.3 mph; 11 P.M., barometer 29.66 inches, wind E.N.E., maximum velocity 71.6 mph; midnight (Sept. 5-6), barometer 29.63 inches, wind E. at 35.8 mph, strong and constant wind gusts, maximum velocity 58.2 mph; 12:30 A.M. Sept. 6, barometer 29.62 inches, wind E. 1/4 N.E. at 43.6 mph, violent and constant wind gusts, maximum velocity 67.1 mph; 1 A.M., barometer 29.59 inches, wind E. 1/4 N.E.; 1:30 A.M., barometer 29.59 inches, wind E. 1/4 N.E. at 40.3 mph, "short hurricanes", maximum velocity 78.3 mph; 2 A.M., barometer 29.61 inches, wind E. at 35.8 mph, "short hurricanes", maximum velocity 85.0 mph; 2:30 P.M., barometer 29.64 inches, wind E. at 43.6 mph, violent gusts, barometer rising, maximum velocity 44.7 mph (probably in error); 3 A.M., barometer 29.65 inches, wind E. 1/4 S.E. at 35.8 mph., successive gusts, maximum velocity 53.7 mph; 5 A.M., barometer 29.72 inches, wind E. 1/4 S.E. at 31.3 mph, violent gusts, maximum velocity 44.7 mph, 6 A.M., barometer 29.73 inches, wind S.E. at 24.6 mph, light rain, maximum velocity 26.8 mph; 8 A.M., barometer 29.84 inches, wind S.E. at 15.7 mph, violent winds; noon, barometer 29.89 inches, wind S.E. 1/4 E., maximum velocity 20.0 mph, constant rain. The vortex went S. of Havana between 12:30 and 2 A.M. Sept. 6 (Monthly Weather Review, Sept. 1882). 10) Selected observations taken on board the "General Duran" at Batabano (Cuba). 6 P.M. Sept. 5, barometer 30.15 inches, wind N. force 7, threatening; 8 P.M., barometer 30.10 inches, wind N.E. force 8, heavy rain; 10 P.M., barometer 30.06 inches, wind E.N.E. force 8, very threatening; 11 P.M., barometer 30.02 inches, wind E. force 10, very threatening; midnight (Sept. 5-6), barometer 29.90 inches, wind E.S.E. force 11, "gusts of rain", 1 A.M. Sept. 6, 29.85 inches, wind S.E. force 11, "gusts of rain"; 2 A.M., barometer 29.88 inches, wind S.E. force 10, heavy showers; 3 A.M., barometer 29.90 inches, wind S.E. force 10, rain and thunder; 4 A.M., barometer 30.00 inches, wind S.E. force 9, raining; 6 A.M., barometer 30.05 inches, wind S.E. force 8, raining (Monthly Weather Review, Sept. 1882). Author's note: Batabano is located on the southern coast of Havana province. Barometer readings reported by the "General Duran" are obviously too high. Judging from the time of the lowest barometer reading taken on board this vessel, the center of the hurricane should have been closer to Batabano around 1 A.M. Sept. 6. Maximum reported winds of force 11 (Beaufort scale) are equivalent to the 64-73 mph wind range. 11) Selected observations taken on board the steamship "Nuevo Cubano" at Nueva Gerona, Isle of Pines. Noon, Sept. 5, barometer 30.20 inches, fresh N.N.W., wind, sky

threatening towards the first quadrant, heavy gusts of wind and rain at intervals; 4 P.M., no barometer reading, brisk N.W. wind, continued gusts of wind and rain; 6 P.M., barometer 30.16 inches, wind N.E. shifting to S.W. (it might be in error), clear between third and fourth quadrants; 8 P.M., barometer 30.04 inches, wind N.W., "wind and rain gusts"; 9 P.M., barometer 29.96 inches, "wind and rain gusts of short duration"; 2 A.M. Sept. 6, barometer 29.84 inches, wind S.W., from 9 P.M. to 2 A.M. the barometer fell steadily attended by heavy "wind and rain gusts", becoming very dark; 2:30 A.M., wind S.W., very violent squalls; 3 A.M., barometer 29.88 inches; 3:30 A.M., barometer 29.92 inches; 4 A.M., barometer 29.96 inches; 4:30 A.M., barometer 30.00 inches (Monthly Weather Review, Sept. 1882). Author's note: The barometer readings reported by the "Nuevo Cubano" are obviously too high. Judging from the time of lowest pressure reported on board the vessel, the westward moving center of the hurricane should have passed to the north of Nueva Gerona around 2 A.M. Sept. 6. 12) Observations taken at Bahia Honda (Cuba). 8 A.M. Sept. 5, barometer 29.53 inches, wind N. force 6, threatening; noon, barometer 29.37 inches, wind N.N.E. force 8, threatening; 1 P.M., barometer 29.29 inches, wind N.E. 1/4 N., threatening; 2 P.M., barometer 29.17 inches, wind N.E. force 9, threatening; 3 P.M., barometer 29.17 inches, wind N.E. 1/4 N. force 10, threatening; 4 P.M., barometer 29.17 inches, wind E.N.E. force 10, threatening; 5 P.M., barometer 29.25 inches, wind E. force 10; 6 P.M., barometer 29.29 inches, wind E. 1/4 N.E. force 10; 7 P.M., barometer 29.37 inches, wind E.S.E. force 9; 8 P.M., barometer 29.45 inches, wind S.E. 1/4 E. force 9; 10 P.M., barometer 29.49 inches, wind S.E. force 8; midnight (Sept. 5-6), barometer 29.53 inches, wind S.E. force 8; 3 A.M. Sept. 6, barometer 29.57 inches, wind S.E. force 6; 6 A.M., barometer 29.65 inches, wind S.E. force 3 (Monthly Weather Review, Sept. 1882). Author's note: The pressure readings above, which were read on an aneroid barometer, seem to be too low. In addition, the observation times are erroneous because they do not support the fact that the storm passed to the south of Bahia Honda during the early morning hours of Sept. 6 but wrongly suggest that it did so in the evening of Sept. 5 as the pressure allegedly began to rise at Bahia Honda after 4 P.M. If the entire set of observations were advanced by 12 hours, a reasonable agreement would be achieved. 13) Havana, Sept. 5. A hurricane passed near Cienfuegos at noon today. The weather here is squally and the barometer is falling. The authorities have prohibited a Spanish mail steamer from leaving port (The New York Times, Sept. 6, 1882, p.2, col.6). 14) Washington, Sept. 5. The Signal Office reports that appearances indicate a cyclone to the S.E. of Havana. Its position and course could not be defined at present (The New York Times, Sept. 6, 1882, p.2, col.6). 15) Key West, Sept. 6. A cyclone passed near here and probably over Cuba from E. to W. The barometer was depressed and there was much high wind (The New York Times, Sept. 7, 1882, p.1, col.7). 16) The Signal Office reports that the cyclone referred to in a special note yesterday is now S. of Cuba moving in a N.W. direction into the Gulf. Vessels leaving Gulf ports will encounter dangerous winds for 2 or 3 days (The New York Times, Sept. 7, 1882, p.1, col.7). 17) Havana, Sept. 6. During the storm here last night, the brig "Eclipse" was slightly damaged. Telegraph communication with the interior has been interrupted by the storm (The New York Times, Sept. 7, 1882, p.1, col.7). 18) Havana, Sept. 8. The recent storm here extended over the greater part of the island, doing the much damage. The American bark "Idaho" and the British schooner "Soreta" were driven ashore at Cienfuegos (The New York Times, Sept. 9, 1882, p.5, col.3). 19) The bark "Addie A. Sleeper", from Progreso, encountered a hurricane 25 miles from Havana on Sept. 7. Wind N.N.E. to S.W. with tremendous sea running (The New York Times, Oct. 8, 1882, p.9, col.3). Author's note: The above encounter should have occurred on Sept.

6 and not on Sept. 7. In addition, the wind change was probably from N.E. to S.E. instead of to S.W. 20) Some observations taken by the "City of Alexandria" (local time). Noon, Sept. 6, lat. 22 30 N., long. 86 00 W., barometer 29.40 inches, wind N.N.W. force 6, set of seas N.E., showery and threatening; 2 P.M., lat. 22 37 N., long. 85 45 W., barometer 29.20 inches, wind N.W. and N.N.W. force 9, same weather and sea conditions; 4:30 P.M., lat. 22 40 N., long. 85 35 W., barometer 28.98 inches, wind N.W. and N.N.W. force 12, rain and squally, sea N.E. and N.W.; 5:30 P.M., barometer 28.98 inches, calm, fair and gloomy, sea N.E. and N.W. air full of tired birds; 7 P.M., lat. 22 45 N., long. 85 35 W., barometer 28.99 inches, wind S. and E. force 12, rainy, squally and lightning, sea N.W.; 10 P.M., lat. 22 50 N., long. 85 14 W., wind S.S.E. force 9, same weather and sea conditions; midnight (Sept. 6-7), lat. 23 05 N., long. 85 00 W., wind S.S.E. force 8, rain and squalls, sea N.W. and S. (Monthly Weather Review, Sept. 1882). 21) Some observations taken by the "City of Puebla". Sept. 6, no time given, lat. 22 48 N., long. 86 11 W., wind N.N.E., 30 knots, squally, wind backing to N.W.; midnight (Sept. 6-7), no position given, barometer 29.49 inches. The vessel also reported light S.S.W. to W. winds off the Yucatan peninsula on Sept. 7-9 (Monthly Weather Review, Sept. 1882). 22) Observations taken by the steamship "Chalmette". From the account given by Capt. F. Read for the passage from the Passes to Tortugas: Crossed the bar at 5:12 P.M. (Greenwich time) Sept. 6. Had fine weather, light E.S.E. breezes and smooth sea until 11 P.M. when a long swell heaving from E.S.E. was noticed. The swell increased and at 4 A.M. Sept. 7 the ship would occasionally pitch bows under. The wind at this time was blowing a fresh gale from E.S.E., the glass at 29.70 inches, and soon commenced to rise slowly, the sea gradually hauling to the S. and to the S.W. without diminishing, the wind still E.S.E. strong. This showed that the vessel was on the northern quadrant of the storm and that there was much more wind to the S. and W. of her. These conditions continued until 4 P.M. when both sea and wind gradually moderated with clearing weather, the glass at 29.90 inches. By 8 A.M. Sept. 8, when 40 miles N.W. of Tortugas, a fresh S.E. breeze was blowing and there was a moderate swell from S.W. (Monthly Weather Review, Sept. 1882). 23) New Orleans, Sept. 23. Brig "Noda" arrived here today. She experienced a hurricane on Sept. 7 and 8. The vessel was strained and leaking, lost sails and spars and the decks were swept with heavy seas (The New York Times, Sept. 24, 1882, p.1, col.5). 24) The steamship "Rio Grande" encountered the storm between lat. 25 33 N. and lat. 25 44 N. and between long. 85 45 W. and long. 87 20 W. on Sept. 8 and 9. Capt. A.C. Burrows, of that steamer, described that on Sept. 7, while stopping at Key West, he was informed that a cyclone had passed along the south side of Cuba traveling N.W. With this warning, he proceeded in a W.N.W. direction until midnight Sept. 8 when appearances of the wind and weather induced him to believe that the storm was recurving and inclining to a N.N.E. or N. course. The wind was then blowing a S.S.E. gale with confused sea from S. and W. The ship's head was then put S.E. and the engines worked slowly just to keep ship in position and the situation remained unchanged for 21 hours when, with violent rains and heavy puffs, the wind gradually worked around to S.W., W. and W.N.W., the glass began to rise, and the weather became fine (Monthly Weather Review, Sept. 1882). 25) Extract of observations taken on board the steamship "Burswell" (local time). 6:35 A.M. Sept. 8, lat. 24 28 N., long. 83 05 W., wind S.S.E. force 3, fine weather, strong swell; 6:23 A.M. Sept. 9, wind S. force 7, dull and threatening, strong swell from S.W.; 6:20 A.M. Sept. 10, lat. 26 26 N., long. 86 45 W., wind W. force 4, fine and clear, strong swell from N. Lowest barometer reading was 29.68 inches roughly at 2:30 A.M. Sept. 9 (0800 Greenwich time) when the wind hauled to S.W. with a high sea from W.N.W. as stated in a description given by Capt. James Wallace of the

"Burswell" (Monthly Weather Review, Sept. 1882). 26) The steamship "Lone Star", from New York for New Orleans, encountered the cyclone of Sept. 9, in lat. 28 15 N., long. 88 05 W., about 65 miles S.E. by E. of Port Eads. 7 A.M. (local time), barometer 29.40 inches, wind E.S.E., rain; 8 A.M., barometer 29.30 inches, wind E.S.E., rain; 9 A.M., barometer 29.20 inches, wind E., rain; 10 A.M., barometer 29.00 inches, wind E., rain; 11 A.M., barometer 28.80 inches, wind E., rain; noon, barometer 29.50 inches, wind N.E., rain; shortly after noon the wind died away and the rain ceased and, although the clouds were heavy and dense, the sun would occasionally burst through. There was a fog or mist confining the area of vision to about 3 or 4 miles from the ship. In this calm center there were many hundreds of land birds of great varieties which sought rest on the rigging in great numbers. 1 P.M., barometer 28.40 inches, wind N., misty; 1:30 P.M., barometer 28.38 inches, wind N.W., rain; 2 P.M., barometer 28.38 inches, wind N.W., rain; 3 P.M., barometer 29.60 inches, wind N.W., rain; the wind blew with great violence from E.S.E. and E. but nothing to be compared with the fury of the blast from 1:30 to 3 P.M., the ship being covered in a perfect sheet of foam and it being impossible to see 10 yards distant; 4 P.M., barometer 28.80 inches. wind N.W., rain; after 4 P.M., the wind moderated and sky cleared with fast rising barometer; at midnight (Sept. 9-10), barometer 29.70 inches, moderate gale, passing clouds (Monthly Weather Review, Sept. 1882). Author's note: It was indicated that the barometer from which the readings were taken stood about 0.02 inch high as compared with daily printed Signal Service reports. 27) Steamship "Haytian", from Colon, encountered the storm on Sept. 9 88 miles S. of South Pass, hove to and rode out of the storm (Monthly Weather Review, Sept. 1882). 28) Steamship "Clapeyron" encountered the storm 16 miles off the South Pass at 6 A.M. Sept. 9. Lowest barometer 29.01 inches (Monthly Weather Review, Sept. 1882). 29) Schr. "Ringdore", from Roatan (Honduras) for Mobile, encountered the storm in lat. 26 00 N., long. 87 12 W. on Sept. 9, wind and rain from the S. (Monthly Weather Review, Sept. 1882). 30) Ship "Annie Gowdey" put into New Orleans for repairs after having had a hurricane from S.E. to N.W. Barometer at midnight 29.00 inches; at 3 A.M., 28.80 inches; at 6 A.M. 28.40 inches; at noon, 28.80 inches (Monthly Weather Review, Sept. 1882). Author's note: Although no date was indicated, it is very likely that the above observations were taken on Sept. 9. 31) Bark "Cato", from Rio de Janeiro encountered the storm 80 miles S.E. of South Pass, lowest barometer 28.01 inches (Monthly Weather Review, Sept. 1882). Author's note: Although no date was given, the above barometer reading should have been taken on Sept. 9. 32) The barometer at Port Eads fell to 29.39 inches and the maximum wind velocity was 92 mph (Monthly Weather Review, Sept. 1882). 33) Tropical cyclone of Sept. 9-10, 1882, N.W. Florida, minimal. In the Gulf, ship barometer 28.01 inches (Dunn and Miller, 1960). Author's note: The characterization of the cyclone as minimal in N.W. Florida is probably an underestimate. According to item 31), the pressure reading of 28.01 inches was taken on board the bark "Cato". 34) U.S. Navy yard, Pensacola: 4:08 A.M. Sept. 9, barometer 30.06 inches, wind N.E. and E. 7 mph; "0.08 P.M." (interpreted to be 12:08 P.M.), barometer 30.05 inches, wind N.E., heavy squalls of wind and rain; 8:08 P.M., barometer 29.85 inches, wind N.E. 31 mph, very heavy squalls of wind and rain; midnight (Sept. 9-10), barometer 29.44 inches, wind N.E. 31 mph; during the succeeding hour the wind backed to N. and E. (the latter direction seems to be in error); 4:08 A.M. Sept. 10, barometer still at 29.44 inches, wind N.N.W. 26 mph, squalls of wind and rain have slightly moderated; "0.08 P.M.", barometer 29.70 inches, wind N.W. 8 mph, rain had ceased. Between midnight and 2 A.M. Sept. 10 the cyclone appears to have approached nearest to the station (Monthly Weather Review, Sept. 1882). Author's note: The above observations are said to be expressed

in Greenwich time. However, such statement seems to be in error because, independently from this set of observations, the Monthly Weather Review, Sept. 1882, also indicates -without mentioning Greenwich time at all- that "the vortex of the hurricane passed at midnight east of Pensacola, but quite near to it; lowest barometer 29.35 (inches)". Furthermore, by accepting that the times given are local and not Greenwich, the timing of events at Pensacola would become much more compatible with observations at other locations near the track and would facilitate the achievement of a good continuity in space and time. 35) On Sept. 10, the storm, increasing in size but diminishing in energy, moved in a northeasterly track over Alabama, Georgia and South Carolina. Lowest pressures were: Montgomery, 29.56 inches; Atlanta, 29.37 inches; Augusta, 29.49 inches; Charleston, 29.60 inches; Charlotte, 29.55 inches. Maximum winds were: Mobile, N. 27 mph; Pensacola, N. 50 mph; Cedar Keys, S. 54 mph; Jacksonville, S.W. 36 mph; Savannah, S. 36 mph; Atlanta, N.E. 41 mph; Augusta, E. 31 mph; Charlotte, S.E. 28 mph; Charleston, S. 36 mph. Second values for the maximum winds at Pensacola (55 mph) and at Savannah (48 mph) were mentioned (Monthly Weather Review, Sept. 1882). 36) Jacksonville, Sept. 12. Damages have been reported by the storm of Sunday morning (Sept. 10). At Tallahassee a new hotel and other buildings were unroofed. Fences, trees and out-houses were blown down (The New York Times, Sept. 13, 1882, p.5, col.5). 37) Columbus, Ga., Sept. 11. A heavy rain and wind storm visited Saturday night (Sept. 9) and continued more or less through Sunday (Sept. 10). A dispatch from Talbotton, Ga. indicated that the storm caused great damage to crops and timber (The New York Times, Sept. 12, 1882, p.5, col.3 and 4). 38) Macon, Ga., Sept. 11. Reports from all sections indicate that great damage was done to cotton crops by the wind and rain of the Saturday night storm (The New York Times, Sept. 12, 1882, p.5, col.3 and 4). Author's note: The storm was also felt there on Sunday (Sept. 10). 39) Greenville, S.C., Sept. 10. A terrific gale from the N.E. continued from 1 A.M. to 3 P.M. (this) Sunday. The wind at one time reached nearly 50 mph. Many trees were uprooted and fences blown down, but no accidents occurred (Monthly Weather Review, Sept. 1882). 40) On Sept. 11, the storm moved in a northeasterly path across North Carolina and entered the Atlantic. Maximum winds were: Smithville, S.W. 40 mph; Wilmington, W. 27 mph; Ft. Macon, S.W. 36 mph; Hatteras, S.W. 42 mph; Kittyhawk, S. 35 mph; Cape Henry, N.E. 35 mph; Chincoteague, E. 41 mph; Delaware Breakwater, E. 32 mph (offshore, N. 56 mph); Cape May, E. 29 mph (offshore, N. 44 mph); Atlantic City, N. 31 mph; Barnegat, N.E. 48 mph; Sandy Hook, N.E. 47 mph; New York, N.E. 31 mph; Block Island, E. 54 mph; Newport, N. 26 mph; Provincetown, N.E. 34 mph; Boston, N.E. 26 mph; Portland, N. 28 mph (Monthly Weather Review, Sept. 1882). 41) The steamship "Chalmette" was off the New Jersey coast at 6 P.M. Monday (Sept. 11). Had heavy swell during the afternoon but the wind began to blow from E.N.E. From 8 to 10 P.M. the rain fell in torrents and the wind blew with hurricane force. Early yesterday morning (Sept. 12) the wind shifted to N. and the sea continued to be confused. Barometer went down to 29.52 inches (The New York Times, Sept. 13, 1882, p.8, col.4). Author's note: The Monthly Weather Review, Sept. 1882, also published an account of the storm given by Capt. F. Read of the "Chalmette" in which he stated that the glass went down to 29.50 inches in lieu of 29.52 inches and added that at daylight Sept. 12, when 4 miles off Long Branch, the glass was at 29.70 inches, with clearing weather and moderating wind and sea. 42) Atlantic City, Sept. 11. A cyclone struck Pleasantville this morning. Trees were uprooted and fences torn down (The New York Times, Sept. 12, 1882, p.5, col.3 and 4). 43) Newport, Sept. 11. A severe N.E. storm prevails (The New York Times, Sept. 12, 1882, p.5, col.3 and 4). 44) Central Park Meteorological Observatory (New York),

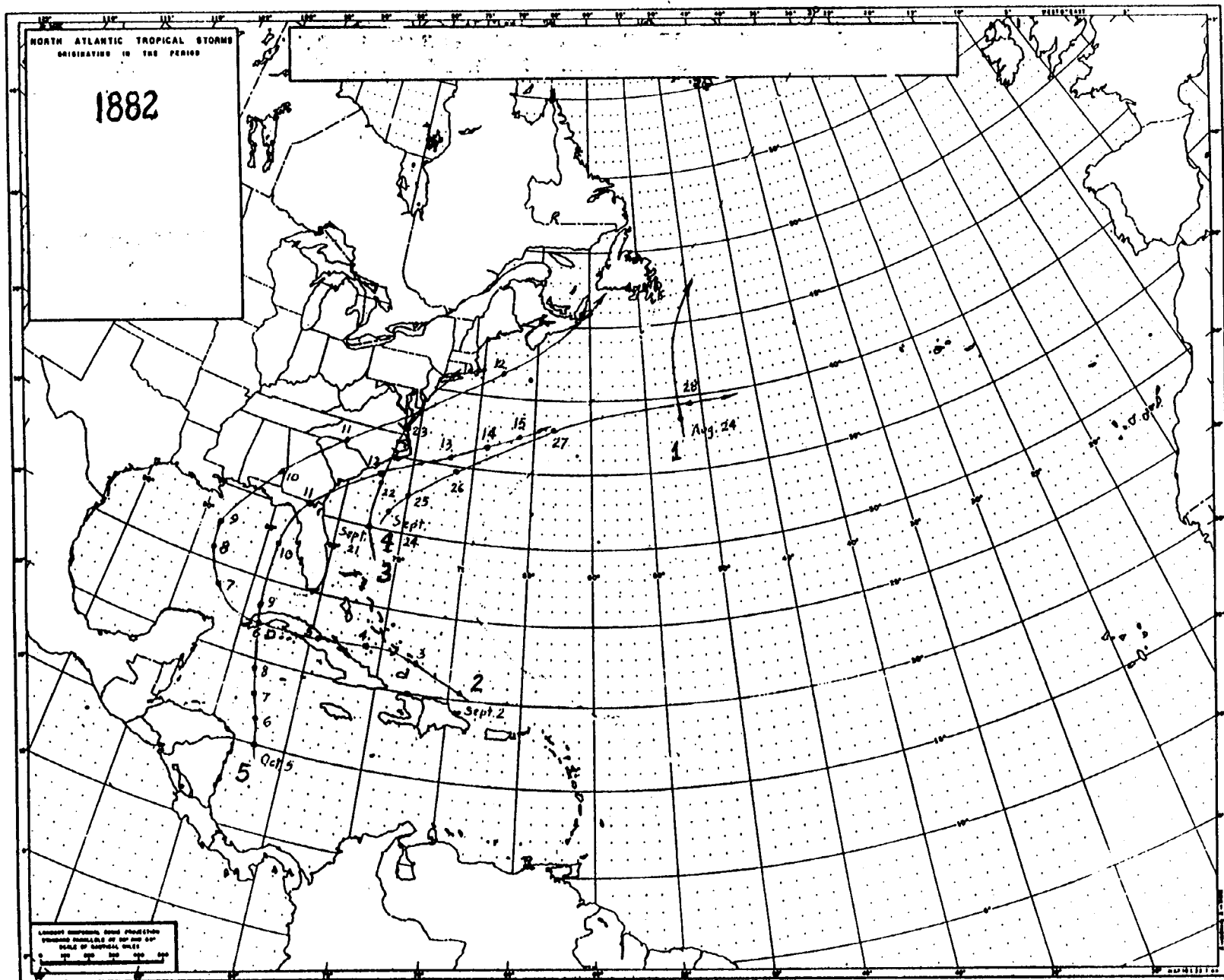


Fig. 2

lowest barometer 29.50 inches at midnight Sept. 11-12 (The New York Times, Sept. 17, 1882, p.16, col.2). 45) Boston, Mass. Sept. 12. The storm of last night was very severe. The rain came down in torrents and the lightning was very vivid (Monthly Weather Review, Sept. 1882). 46) Eastport, Me. The storm here was the fiercest that has visited this section in many months and was accompanied by heavy rain (Monthly Weather Review, Sept. 1882). 47) Portland, Me. The storm was the severest since last winter, the wind attaining a velocity of 36 miles per hour. Trees and chimneys were blown down and awnings were considerably damaged (Monthly Weather Review, Sept. 1882). Author's note: This is a second value for the maximum wind at Portland; a maximum of 28 mph is also given in the above mentioned publication. 48) Map showing a track for the storm. Such a track extends from just N. of the Dominican Republic in the afternoon of Sept. 2 to eastern Nova Scotia in the afternoon of Sept. 12 (Monthly Weather Review, Sept. 1882).

Based on information contained in the above items, the author of this study proposed some modifications along the track for this storm which is displayed as for Storm 1, 1882 in Neumann et al. (1993). On the basis of the items which were indicated, new 7 A.M. positions were estimated by the author for the following days: Sept. 2, 20.3 degrees N., 69.3 degrees W., based on item 2), this position is slightly to the S.W. of the one in Neumann et al. (1993); Sept. 3, 22.0 degrees N., 72.5 degrees W., based on item 2); Sept. 4, 22.5 degrees N., 76.2 degrees W., based on items 3) and 4) and on space-time continuity; Sept. 5, 22.3 degrees N., 79.5 degrees W., primarily based on items 6) and 7) and which is practically the same position shown in Neumann et al. (1993); Sept. 6, 22.3 degrees N., 83.8 degrees W., primarily based on items 7), 10) and 11) and on space-time continuity; Sept. 7, 23.8 degrees N., 87.3 degrees W., based on items 20) through 22) and on space-time continuity; Sept. 8, 26.0 degrees N., 88.6 degrees W., based on item 24) and on space-time continuity, and coinciding this position with the one given in Neumann et al. (1993); Sept. 9, 27.7 degrees N., 88.7 degrees W., based on information in several items but in item 26) in particular, this position is slightly to the S. of the one shown in Neumann et al. (1993); Sept. 10, 31.9 degrees N., 85.2 degrees W., chiefly based on item 34) and on space-time continuity, this position is slightly to the S.E. of the one given in Neumann et al. (1993) and it allows for the storm to have made landfall some distance to the east of Pensacola and not right on that city as suggested in the above mentioned publication. 7 A.M. positions for Sept. 11 and 12 in Neumann et al. (1993) were kept unchanged because they were found to be supported, in general, by the information for those days which is contained in items 40) through 48). The author's track for Storm 2, 1882 is shown in Fig. 2.

Barometer readings of 28.40 inches reported by the "Annie Gowdey" (item 30), 28.38 inches reported by the "Lone Star" (item 26) and 28.01 inches reported by the "Cato" (item 31) clearly show that the storm was a major hurricane over the Gulf of Mexico on Sept. 9.

Storm 3, 1882 (Sept. 21-23).

This is the same storm that Neumann et al. (1993) show as Storm 2, 1882.

The following information was found in relation to this storm: 1) On Sept. 22, there was a sharp fall of pressure on the North Carolina coast and by midnight (Sept. 22-23) there was a well-developed low pressure area of slight extent W. of Hatteras, the lowest barometers along the track being more than 0.25 inches below mean pressure. On Sept. 23, the center of the depression moved along and was near the Middle Atlantic coast, when the wind shifted to high

S.E. to S.W. (Monthly Weather Review, Sept. 1882). 2) Maximum winds: Ft. Macon, S.W. 25 mph; Hatteras, S.E. 48 mph and offshore N. 25 mph; Kittyhawk, S.E. 28 mph; Cape Henry, E. 32 mph; Chincoteague, N.W. 28 mph; Delaware Breaker, N.W. 31 mph; Cape May, offshore, N.W. 40 mph; Atlantic City, S.E. 32 mph; Barnegat, S. 38 mph; Sandy Hook, N. 40 mph; New Haven, N. 25 mph; New London, S.E. 28 mph (Monthly Weather Review, Sept. 1882). 3) Washington, Sept. 23, 1 A.M. For the South Atlantic States: Local rains following by clearing weather, N. to N.W. winds, higher barometer. For the Middle Atlantic States: Partly cloudy or cloudy weather with rain, N.E. backing to N. winds, stationary or lower barometer. Cautionary signals continue at places along the U.S. east coast from the Carolinas to New England. (The New York Times, Sept. 23, 1882, p. 5, col.2). 4) Raleigh, N.C., Sept. 23. Rainfall of 7.70 inches was recorded in just a few hours (The New York Times, Sept. 24, 1882, p.2, col. 3). 5) Philadelphia, Sept. 23. Nearly 11 inches of rain have fallen during the past 72 hours (The New York Times, Sept. 24, 1882, p.2, col.3) 6) A very heavy rainstorm. Over 6 inches of rainfall in 1 day. The storm was discovered by the Signal Service Tuesday morning (Sept. 21). It originated off the North Carolina coast. The storm reached New York by 7 A.M. yesterday morning (Sept. 23); however, its center was not over the city until 6 P.M. From 7 A.M. to 3:30 P.M. rainfall was 1.72 inches. From 3:30 P.M. to 11 P.M., 4.36 inches. Total for 36 hours ending at 11 P.M. was 9 inches. Between 6 P.M. and 9 P.M., the rain was especially heavy and violent (The New York Times, Sept. 24, 1882, p.1, col.7). Wind: At Sandy Hook, sunset Sept. 23, moderate E., cloudy and foggy (The New York Times, Sept. 24, 1882, p.7, col.5). 8) Map showing a track passing just E. of Wilmington, N.C., near Norfolk, then along the coast of Maryland and Delaware and finally over Long Island (Monthly Weather Review, Sept. 1882).

On the basis of the information above, the storm track shown in Neumann et al. (1993) as for Storm 2, 1882 was found to be reasonable and, therefore, it was adopted by the author of this study and reproduced as for Storm 3, 1882 in Fig. 2.

Indications are that this storm was rather a weak to moderate one and that, of course, did not attain hurricane intensity.

Storm 4, 1882 (Sept. 24-28).

This is a storm case which was unknown before and which has been recently documented by the author of this study.

Documentation of this storm was based on the following information: 1) Brig "Belle of the Bay", from Pensacola, reported a hurricane for 24 hours in the Gulf off Mexico on Sept. 10 (Storm 2, 1882) and on Sept. 24, in the Gulf Stream, had a severe gale which lasted 38 hours (The New York Times, Oct. 9, 1882, p.5, col.1). Author's note: According to The New York Times, Oct. 9, 1882, p.5, col.1, the "Belle of the Bay" spent 33 days in sailing from Pensacola to New York. The vessel should have arrived at the latter port on Oct. 8 (day before publication) and was estimated to have been somewhere in the vicinity of 31 degrees N., 76 degrees W. on Sept. 24. 2) The bark "R.A. Allen", from Cardenas (Cuba) was caught in a hurricane on Sept. 25, labored heavily, shipped vast quantities of water and cargo was adrift in between the decks (The New York Times, Oct. 8, 1882, p.6, col.7). Author's note: According to The New York Times, Oct. 8, 1882, p.7, col.2, the "R.A. Allen" spent 20 days in sailing from Cardenas to New York. The vessel should have arrived at the latter port on Oct. 7 (day before publication) and was also estimated to have been not very far from 31 degrees

N., 76 degrees W. when she met the storm on Sept. 25. 3) Bark "Sedmi Dubrovacki" at midnight Sept. 27 was caught in a tremendous hurricane at lat. 40 30 N., long. 54 W. The wind shifted from S.S.E. to N.N.E. by the way of E. (The New York Times, Oct. 8, 1882, p.6, col.7).

Based on items 1) and 2), the author estimated 7 A.M. positions near 31.3 degrees N, 76.3 degrees W. on Sept. 24 and near 32.5 degrees N., 75.0 degrees W. on Sept. 25, implying a drift towards the N.E. at no more than 5 mph over the above mentioned 24-hr period. Afterward, the storm was postulated to have accelerated along a curved track which passed just to the S. of the position given by bark "Sedmi Dubrovacki" (item 3). The author estimated the following 7 A.M. positions along the track: Sept. 26, 34.7 degrees N., 71.5 degrees W.; Sept. 27, 38.0 degrees N., 63.3 degrees W.; Sept. 28, 39.5 degrees N., 51.0 degrees W. The five estimated positions above produced the author's track for Storm 4, 1882 which is displayed in Fig. 2.

Judging by the content of items 2) and 3), the storm apparently attained full hurricane intensity.

Storm 5, 1882 (Oct. 5-15).

This is the same storm that Neumann et al. (1993) identify as Storm 3, 1882.

Abundant information was found about this storm: 1) Storm of Oct 8-12, 1882. Grand Cayman Island, Cuba, Florida. Town of Pinar del Rio all destroyed (Tannehill, 1938). 2) From scattered vessel reports it appears that an atmospheric disturbance existed in the Caribbean Sea from Oct. 5 to Oct. 7, but data were too meager to obtain a definite location of the center (Monthly Weather Review, Oct. 1882). 3) The cyclone did not appear to have exhibited much energy until Oct.8 when it was central S. of Cuba. Bark "Tamora" encountered a hurricane off the south coast of that island on Oct. 8 and the bark "Sadie" was abandoned during a hurricane about 30 miles N.W. of Grand Cayman on the same day (Monthly Weather Review, Oct. 1882). 4) According to Father Vines (of Havana), the cyclone which was reported Saturday (Oct. 7) to be forming and which broke yesterday extended from Santiago de Cuba and Guantanamo to Veracruz, displaying its greatest intensity over Vuelta Abajo. It will exhibit great intensity on extreme N. Yucatan and in the eastern part of the Gulf of Mexico (The New York Times, Oct. 10, 1882, p.5, col.3). Author's note: In addition, the Monthly Weather Review, Oct. 1882, published that the diameter of the cyclone greatly increased on Oct. 8. 5) Some meteorological observations taken at plantation "Casualidad" (Taironas), 6 miles S. of Pinar del Rio (Cuba). 11 A.M. Oct. 7, barometer 29.80 inches, wind N.E. force 5, squally, very sullen and gloomy; midnight Oct. 7-8, barometer 29.71 inches, wind E.N.E. force 8, squally, horizon covered; 4 A.M. Oct. 8, barometer 29.65 inches, wind E. force 9, steady squalls, violent gusts from N.E.; noon, barometer 29.54 inches, wind E. force 10, heavy showers, violent gusts from N.E.; 2 P.M., barometer 29.37 inches, wind S.E. (?) force 10, heavy showers, violent gusts from N.E.; 3:30 P.M., barometer 29.18 inches, wind S.E. (?) force 10, great damage, the sky assumed a leaden color and the gusts became less strong from N.E.; 5 P.M, barometer 29.13 inches, wind S.E. (?) force 10, stronger gusts from N.E., heavy showers, trees fell like leaves; 6:30 P.M., barometer 29.02 inches, wind S.E. (?) force 10, trees fell like leaves, increased damage; 7:15 P.M., barometer 28.79 inches, wind S.E. (?) force 10, gusts raged with greatest intensity from N.E., the force of the wind was indescribable: it looked like

the end of the world, more or less calm from 7:15 to 7:30 P.M., lightning without thunder, everything illuminated; 7:30 P.M. barometer 28.79 inches, wind S.E. (?) force 10, terrible gusts without precipitation; 10 P.M., barometer 29.13 inches, wind S.E. (?) force 9, dry; midnight (Oct. 8-9), barometer 29.21 inches, wind S.E. 1/4 S. (?) force 8, dry; 1 A.M. Oct. 9, barometer 29.40 inches, wind S.E. 1/4 S. (?) force 8, dry, clearing, the stars visible; 3 A.M., barometer 29.51 inches, wind S.S.W. (?) force 7, misty at intervals; 4:30 A.M., barometer 29.54 inches, wind S.S.W. (?) force 6, misty at intervals; 5 A.M., barometer 29.58 inches, wind S.W. (?) force 5, clear (Monthly Weather Review, Oct. 1882). Author's note: These and other Cuban observations about this hurricane were furnished to the Signal Service by Father Benito Vines, S.J., Belen College Observatory, Havana. The wind scale used ranged from 0 to 10. The wind direction reported from plantation "Casualidad" obviously became unreliable after midday Oct. 8.

6) Some observations taken by Capt. Jose Lleonard of the steamer "Cristobal Colon" at the mouth of the Colona River (it should read Coloma River), Cuba. 6 A.M. Oct. 8, barometer 29.86 inches, wind E. force 5, wind became fresh from E. with drizzling rain, strong wind encountered at the Colon pier, cyclone making sign of approach; noon, barometer 29.84 inches, wind E. to E.N.E. force 5, sky covered by a veil of cirrus, stratus and nimbus, weather misty; 3 P.M., barometer 29.82 inches, wind E. to E.N.E. force 5, raining in torrents; 4 P.M., barometer 29.80 inches, wind E., heavy gusts, continued heavy squalls; 5 P.M., barometer 29.76 inches, wind E. to E.S.E., very heavy gusts, very threatening, the awning carried away; 6 P.M., wind S.E., very heavy squall, the sea rose 9 feet above its ordinary height, the pier to which the steamer was moored gave away and the irresistible force of the wind caused the vessel to drag, the steamer was in danger of being totally wrecked; 10 P.M., barometer 29.72 inches; midnight (Oct. 8-9), barometer 29.65 inches, wind S., irresistible squalls; 1 A.M. Oct. 9, barometer 29.61 inches, wind S., gusts, wind decreasing in strength at intervals; 2 A.M., barometer 29.59 inches, lightning seen and distant thunder heard, the sea fell and wind became variable from S. to S.W.; 6 A.M., barometer 29.61 inches, wind S.W. force 2, cirrus and nimbus clouds; 8 A.M., barometer 29.69 inches, wind S.W. force 2, weather improving. Capt. Lleonard stated that not having an anemometer to measure the wind speed he estimated to have been, without exaggeration, force 12 on the Beaufort scale (Monthly Weather Review, Oct. 1882). Author's note: Coloma River is located in Pinar del Rio province and discharges into the cove of La Coloma on the southern coast of that province. The barometer readings reported by Capt. Lleonard are believed to be unreliable.

7) Selected observations taken at San Cayetano (Cuba). 1 P.M. Oct. 8, barometer 29.72 inches, wind E. force 2; 3 P.M., barometer 29.61 inches, wind E. force 2; 5 P.M., barometer 29.57 inches, wind E. force 3; 7 P.M., barometer 29.49 inches, wind E. force 4; 8 P.M., barometer 29.41 inches, wind E. force 4; 9 P.M., barometer 29.33 inches, wind E. force 4; 10 P.M., barometer 29.17 inches, wind S.E. force 4; 11 P.M., barometer 29.06 inches, wind S.E. force 4; midnight (Oct. 8-9), barometer 28.98 inches, wind S.S.E. force 4; 1 A.M. Oct. 9, barometer 29.06 inches, wind S. force 4; 2 A.M., barometer 29.25 inches, wind S.S.W. force 4; 3 A.M., barometer 29.29 inches, wind S.S.W. force 4; 4 A.M., barometer 29.33 inches, wind S.S.W. force 4; 5 A.M., barometer 29.33 inches, wind S.S.W. force 4; 7 A.M., barometer 29.41 inches, wind S.W. force 3; 9 A.M., barometer 29.45 inches, wind S.W. force 3; 11 A.M., barometer 29.53 inches, wind S.W. force 2; 1 P.M., barometer 29.61 inches, wind S.W. force 2 (Monthly Weather Review, Oct. 1882). Author's note: San Cayetano is a town of Pinar del Rio province which is located near the north-central coast of that province, about 3 miles inland. The wind force scale used was not specified.

8) Detailed observations taken at Belen College Observatory (Havana) showed the lowest

barometer reading of 29.63 inches to have occurred there at 3:30 A.M. Oct. 9. The highest wind of 28 mph from S.S.E. occurred at 4:30 A.M. Oct.9 and the peak gust of 49 mph was recorded at 2:15 A.M. (Monthly Weather Review, Oct. 1882). 9) Oct. 7-9, 1882. A disastrous hurricane passed over Pinar del Rio province (western Cuba), causing great damage and a large number of casualties. The center passed very near to the W. of San Juan y Martinez, where the vortical calm lasted for 2 hours. Showers and cyclonic winds were felt at Havana (Sarasola, 1928). Author's note: Actually taken from the catalog of Cuban hurricanes by M. Gutierrez-Lanza which is included in Sarasola (1928). 10) Havana, Oct. 12. The late cyclone did much damage in the Vuelta Abajo (western Cuba), especially at Consolacion del Sur. The tobacco crops suffered greatly. Two coastal steamers were lost on the S. side of the island (The New York Times, Oct. 13, 1882, p.5, col.1). 11) Havana, Oct. 13. Accounts from the Vuelta Abajo show that the recent storm caused considerable loss of life and property. The bodies of 15 persons have been recovered and many more persons are missing. 750 houses were destroyed at Consolacion del Sur and 300 huts and houses were demolished at Herradura (The New York Times, Oct. 14, 1882, p.5, col.4). 12) Havana, Oct. 14. According to advices from San Cristobal, the bodies of 36 persons drowned by the overflow of rivers during the late cyclone have been already recovered (The New York Times, Oct. 15, 1882, p.1, col.6). 13) Key West. From 4:30 to 10 A.M, Oct. 9 the barometer rose slightly and from 10 A.M. to 12:30 P.M. fell 0.05 inches; after 12:30 PM. it rose steadily. The storm began at 4 A.M. and ended at 10:30 P.M. The wind veered from S.E. to S. between 1 and 1:30 P.M. (Monthly Weather Review, Oct. 1882). 14) The schooner "O.M. Remington", from Roatan (Honduras) to Philadelphia, arrived at Key West on the night of Oct. 9 and reported having encountered the cyclone in lat. 23 30 N., long. 84 W. on the night of Oct. 7. She experienced high E. winds and had her jibboom, bowsprit and sails carried away (Monthly Weather Review, Oct. 1882). Author's note: The schooner should have encountered the storm during the night of Oct.8 and not during the night of Oct. 7. The storm should have continued on Oct.9. 15) The brig "Emily T. Sheldon", from New York to Galveston, encountered the storm in the morning of Oct.8 in lat. 23 40 N., long. 82 30 W. She experienced high S.E. to S.W. winds, and lost her mainmast and sails (Monthly Weather Review, Oct. 1882). Author's note: The storm should have continued through Oct. 9. 16) Bark "Plimsoll" experienced high E. winds on the morning of Oct. 8 in lat. 23 40 N., long. 83 40 W. At noon came a calm, lasting for 3 hours, when the wind changed to W. and blew with great violence for 2 hours. It then backed to S.W. and moderated (Monthly Weather Review, Oct. 1882). Author's note: The correct day should be Oct. 9 and not Oct. 8. 17) Punta Rassa. The barometer fell steadily until 6 P.M. (Oct. 9) when it reached 29.65 inches, after which it rose. Brisk E. winds prevailed until about 7:30 P.M. when the wind veered to S.E. and continued with increasing force; it then shifted to S., reaching the maximum velocity of 42 mph at 11:35 P.M. After midnight (Oct. 9-10) the wind veered to S.W. and blew with diminishig force (Monthly Weather Review, Oct. 1882). 18) The gale began at Cedar Keys about 4 A.M. Oct. 10. On the morning, the wind veered from N.E. to E. , steadily and gradually shifting during the day to S.E. and S., increasing in force until it attained a velocity of 56 mph (a second extreme velocity of 52 mph was given). The gale ended at 9 A.M. Oct. 11, veering to N.W. (Monthly Weather Review, Oct. 1882). 19) Oct. 9-11, 1882. Near Cross City. Tropical cyclone of minimal intensity (Dunn and Miller, 1960). 20) At 10 A.M. Oct. 11, the following was sent to the Maritime Association, New York City: "The cyclone has increased in energy. It is now central in Northern Florida. Southeast gales were reported near Jacksonville. Barometer 29.55 inches. It is not safe for vessels to sail for southern ports"

(Monthly Weather Review, Oct. 1882). 21) On the afternoon of Oct. 11, the center of the cyclone was near Savannah. Signals had been displayed there for 16 hours before the storm appeared. The wind blew 40 mph at Charleston and 38 mph at Savannah (Monthly Weather Review, Oct. 1882). 22) Charleston. The whole day of Oct. 11 was rainy and stormy. There was very heavy rain with high N.E. gale. Fences, chimneys and trees were blown down. The schooner "Maggie J. Lawrence" encountered the storm when she was about 15 miles from Charleston and lost all her sails (Monthly Weather Review, Oct. 1882). 23) Brig "Herman", from Caibarien (Cuba). Oct. 12, when 50 miles S. of Cape Lookout, was caught in a hurricane. She was hove to for 72 hours (The New York Times, Oct. 21, 1882, p.3, col.2). 24) The "Tropic", from Jamaica, arrived at Philadelphia with a list to starboard, her cargo having shifted and with deck stove in, wheel lost and steering gear damaged, having encountered a hurricane (The Times, London, Oct. 19, 1882, p.10, col.6). 25) Bark "Lizzie H. Spaulding", from Singapore, encountered a hurricane from S.S.E to N.W. at lat. 27 N., long. 64 W., lasting 8 hours during which she lost an entire set of sails (The New York Times, Oct. 20, 1882, p.2, col.3). Author's note: As no date was given, the relation of this item to the storm is uncertain. In addition, if it were related to this case, the latitude would probably be in error. 26) Schr. "Annie D. Merritt", from Samana (Dominican Republic), reported having encountered a hurricane at lat. 27 N., long. 70 W. The wind blew from S.W. for 12 hours, then hauled to N.E. and settled into a strong N.E. gale which lasted 4 days (The New York Times, Oct. 21, 1882, p.3, col.2). Author's note: As no date was given, the relation of this item to this storm is uncertain. If it were related to this case, the latitude would probably be in error. 27) Bark "Una", from Rangoon, reported that on Oct. 13 had a heavy gale from S.W. to S.S.W. with a heavy sea running (The New York Times, Oct. 29, 1882, p.2, col.5). Author's note: As no position was given, the connection of this item to the storm is uncertain. 28) Bark "Julia H". Oct. 15, lat. 38 06 N., long. 65 23 W., wind S.E. force 10, overcast, light rain (Monthly Weather Review, Oct. 1882). Author's note: Force 10 on the Beaufort scale is equivalent to 55-63 mph. 29) Map showing a track for the storm moving over the S. coast of Pinar del Rio province (Cuba) in the night of Oct. 8, entering northern Florida between Cedar Keys and St. Marks in the evening of Oct. 10 and being off Cape Hatteras by early afternoon Oct. 12 (Monthly Weather Review, Oct. 1882).

The content of the items above was found to support, in general, the track for this storm which is shown as for Storm 3, 1882 in Neumann et al. (1993). Therefore, the author of this study decided to reproduce such a track in Fig. 2 without introducing any modification to it. It should be mentioned, however, that the author considered the possibility of extending the track beyond Oct. 15 on the basis of additional meteorological information given by ships sailing in the central and eastern portions of the North Atlantic Ocean, which the Monthly Weather Review, Oct. 1882, has published as linked to this storm. After a careful analysis of this information, the author of this study decided to end his track on Oct. 15 because there was too much of a risk in connecting this storm with the low pressure area which was estimated to have been in the vicinity of 50 degrees N., 45 degrees W. (about 300 miles east of Newfoundland) on Oct. 17 and to have moved to the E. or E.N.E., causing hurricane force winds and a barometer reading of 28.46 inches on board the steamship "Colima" on Oct. 18-19 (Monthly Weather Review, Oct. 1882) and reaching the British Isles on Saturday Oct. 21 (The Times, London, Oct. 23, 1882, p.6, col.5).

Based on the lowest pressure of 28.79 inches reported at plantation "Casualidad", Pinar del Rio province, Cuba (item 5), Storm 5, 1882 was a moderate hurricane.